Remarks/Arguments

The claims have been rewritten in an effort to overcome the rejection under 35 U.S.C. 112, taking into account the Examiner's specific objections. Also, those claims reciting a base plate and a cover plate have been made dependent on claim 42, first reciting these features, and these dependent claims immediately follow claim 42, as required.

Claim 21 has been rewritten as claim 41, which incorporates the subject matter of original claim 35 and is believed to define the disclosed subject matter more clearly over the art of record. Claim 41 is respectfully submitted neither to be anticipated under 35 U.S.C. 102(b) by the art of record, nor to be obvious therefrom under 35 U.S.C. 103(a).

As described in the second full paragraph of col. 12, the microfluidic device of the cited Chow et al patent is comprised of a top substrate and a bottom substrate. The bottom substrate has a portion extending beyond the top substrate along at least one edge, and a plurality of electrical contact pads are provided on this extended bottom substrate portion. One of the substrates holds the reservoirs while the other substrate holds pins projecting into the reservoirs. As stated in col. 15, line 24, each pin is angled at 90°. Each

electrical contact pad is connected by wires to a separate one of the reservoirs in the bottom substrate. As described in col. 8, fluid conduits connect two reservoirs and these fluid conduits intersect with further fluid conduits interconnecting two other reservoirs.

The cited Zanzucchi et al patent describes a microelectronic device in which a fluid is applied to the surface of a microlabaratory disc, col. 4, second full paragraph, comprising a plurality of reservoirs connected by channels, assembled in a module. Each module is connected to a well that collects excess or waste fluilds from the respective module. A plurality of such modules may be arranged on the microlaboratory disc.

As described in the paragraph bridging columns 7 and 8 of the patent, a metal coating may be deposited on the reservoir material to regulate the temperature of the reservoirs. This metal coating is connected to electrodes on the backside or frontside of the microlaboratory disc to measure and regulate the temperature. In the third full paragraph in col. 8, an alternative arrangement of the electrodes is described, according to which two or more electrodes are deposited on each side of the reservoirs and connected to external leads, in turn connected to a source of alternating current. The alternating

fields provide reversible magnetic fields to mix the fluid in the reservoirs thoroughly.

According to the fifth full paragraph in col. 8, a glass cover plate is affixed to the microlaboratory disc to complete a capilllary structure for the connecting channels between the reservoirs and to ensure that fluids in the reservoirs do not evaporate.

The Hu et al patent has been cited only as evidence against the subject matter of claims 43 and 44, and the Sundberg et al patent has also been cited only against certain other dependent claims. These patents are not believed to require discussion since they are not believed to suggest anything in relation to the subject matter of claim 41 which goes beyond the above-discussed disclosures of the primary references.

The patentable novelty of the present invention, as set forth in claim 41, is not the arrangement of the reservoirs and their interconnection, as generally described in Chow et al and Hu et al, but the arrangement of the the electrical conductors on the analysis unit itself. This arrangement on the analysis unit effectuates the transport of the molecules from a first reservoir in the direction of a second reservoir, with two

different flow directions, on the analysis unit itself, rather than by pins on a cover, as in Chow et al and Hu et al (bed of nails equivalent to Chow et al's pins). This has the considerable advantage of facilitating the handling of the system because it does not require the exact positioning of the cover so that the pins project into the reservoirs in the bottom.

It is also advantageous that any contaminations introduced by the pins in the reservoir are avoided. In the Chow et al device, the analysis system may be replaced and, therefore, their pins may project into different analysis systems so that contaminations may be transferred from one system to another. Thus, the claimed electrode arrangement clearly distinguishes over Chow et al, and claim 41 is patentable thereover (as well as Hu et al).

As to Zanzucchi et al, their reservoirs in the microlaboratory disc are coated with electrodes but there are no electrical conductors between these electrodes. Thus, no transport of molecules can be effected from one reservoir to another. This is effectuated by capillary forces, and the electrodes serve only for temperature regulation. Accordingly, claim 41 is respectfully submitted clearly to be patentable thereover.

The dependent claims partly recite features not shown in the prior art, all of them depending on claim 41 and being allowable therewith.

A sincere effort having been made to overcome all grounds of rejection, favorable reconsideration and allowance of claims 41-59 are respectfully solicited.

Respectfully submitted,

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I hereby certify that this correspondence is sent by telefax to the US PTO on Feb. 4, 2004, Fax No.: 703-872 9310.

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